Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended) A method of coding data for spread spectrum data communications comprising the steps of:

   encoding data with a set of orthogonal codes, wherein said set of orthogonal codes includes a plurality of n-bit orthogonal codes; and

   multiplying a m-bit spreading sequence across the encoded data, wherein m is an integer multiple of n.

2. (original) The method of claim 1, wherein said orthogonal codes are Walsh codes.

3. (original) The method of claim 2, wherein n is eight.

4. (original) The method of claim 1, wherein said spreading sequence is an even ordered code.

5. (original) The method of claim 4, wherein said even ordered code is selected from the group consisting of: M sequence, Barker code, Gold code, Kasami code, pseudo-noise sequence, or a combination thereof.

6. (previously presented) The method of claim 1, wherein said encoded data comprises one or more orthogonal codes.

7. (previously presented) A method of spreading data in a spread spectrum communications system, the method comprising the steps of:

   encoding a data stream according to a primary orthogonal encoding scheme employing primary codes; and

   spreading the primary encoded data with a secondary sequence, wherein a bit length of said secondary sequence is an integer multiple of a bit length of said primary codes.

8. (original) The method of claim 7, further comprising the steps of:

    differential encoding said data stream; and

    scrambling said data stream prior to said steps of encoding and spreading.

9. (original) The method of claim 7, wherein said primary codes are orthogonal Walsh codes.

10. (original) The method of claim 9, further comprising segmenting said data stream into multiple bit data packets representing one of a number of true or inverted Walsh codes.

11. (original) The method of claim 9, further comprising:

    providing synchronization pulses to synchronize said Walsh codes and said secondary sequence, and

    holding said data stream in a data storage buffer prior to spreading said data stream with said secondary sequence.

12. (previously presented) The method of claim 8, wherein said differential encoding is differential encoding for binary phase shift keying (BPSK) modulation.

13. (previously presented) The method of claim 8, wherein said differential encoding is differential encoding for quadrature phase shift keying (QPSK) modulation.

14. (original) The method of claim 7, wherein said secondary sequence is selected from the group consisting of: M sequence, Barker code, Gold code, Kasami code, pseudo-noise sequence, or a combination thereof.

15. (original) The method of claim 7, further comprising the steps of:

    modulating said spread data stream; and

    transmitting said modulated data stream.

16. (currently amended) A method for communicating data in a parallel spread spectrum communications system, the method comprising the steps of:

    receiving a parallel spread spectrum communication signal <u>encoded with a plurality of orthogonal codes</u>; and

    recovering a data stream from said parallel spread spectrum communications signal.

17. (original) The method of claim 16, wherein said step of recovering said data stream from said parallel spread spectrum communications signal comprises the steps of:

converting said received signal into a digitized data stream;

computing a cross correlation between said digitized data stream and a programmed sequence;

utilizing said cross correlation to extract multi-byte samples and byte timing information;

extracting symbol timing information from said extracted multi-byte samples; and

de-modulating said extracted multi-byte samples.

18. (previously presented) The method of claim 17, wherein said programmed sequence is a pseudo-noise sequence.

19. (previously presented) The method of claim 16, further comprises generating said parallel spread spectrum communication signal according to a generation method comprising the steps of:

encoding data with n-bit orthogonal codes; and

multiplying a m-bit spreading sequence across said encoded data, wherein m is an integer multiple of n.

20. (currently amended) A method for communicating a parallel spread spectrum communication signal in a cellular network comprising:

receiving a parallel spread spectrum communication signal encoded with a plurality of orthogonal codes at a first receiver; and

relaying said received parallel spread spectrum communication signal to a second receiver.

21. (original) The method of claim 20, wherein said first receiver is a base station.

22. (original) The method of claim 20, wherein said first receiver is a mobile telephone switching system.

23. (original) The method of claim 20, wherein said step of relaying comprises:

transmitting said received parallel spread communication signal to said second receiver.

24. (original) The method of claim 22, wherein said second receiver is a cellular device.

25. (previously presented) The method of claim 20, wherein said step of relaying comprises:

converting said received parallel spread communication signal into a converted communication signal;

transmitting said converted communication signal to said second receiver.

26. (original) The method of claim 25, wherein said second receiver is a cellular device or a land-based telephone device or network.

27. (previously presented) The method of claim 20, wherein said parallel spread spectrum communication signal is generated by a generation method comprising:

encoding data with n-bit orthogonal codes; and

multiplying a m-bit spreading sequence across one or more orthogonal codes encoding said data, wherein m is an integer multiple of n.

28. (currently amended) A parallel spread spectrum communication device comprising:

an encoder for encoding a data stream according to a primary orthogonal encoding scheme <u>employing primary codes</u>, and

a spreader for spreading said encoded data stream with a secondary sequence.

29. (original) The device of claim 28, wherein said primary encoding scheme employs n-bit orthogonal Walsh codes.

30. (original) The device of claim 29, wherein said spreading sequence is a m-bit pseudo-noise sequence.

31. (original) The device of claim 30, wherein m is an integer multiple of n.

32. (original) The device of claim 28, further comprising:

a modulator; and

a transmitter.

33. (currently amended) A parallel spread spectrum communication device comprising:

an encoder for encoding a data stream according to an orthogonal encoding scheme <u>employing primary codes</u>;

a spreading sequence generator to generate a spreading sequence; and

a spreader to spread said orthogonal encoded data stream with said spreading sequence.

34. (original) The device of claim 33, further comprising

a synchronization module for synchronizing said orthogonal encoded data stream with said spreading sequence; and

a data buffer to temporarily store said orthogonal encoded data stream.

35. (original) The device of claim 33, further comprising

a differential encoder to differentially encode said orthogonal encoded data stream prior to spreading with said spreading sequence.

36. (original) The device of claim 33, further comprising

a scrambler to spectrally whiten and remove DC offset from said data stream.

37. (original) The device of claim 33, wherein said spreading sequence is selected from the group consisting of: M sequence, Barker code, Gold code, Kasami code, pseudo-noise sequence, or a combination thereof.

38. (original) The device of claim 33, wherein said orthogonal coding scheme employs orthogonal Walsh codes.

39. (currently amended) A parallel spread spectrum communication device comprising:

a receiver for receiving a parallel spread spectrum communications signal <u>encoded with a plurality of orthogonal codes</u>; and

means for recovering a data stream from said parallel spread spectrum communications signal.

40. (original) The device of claim 39, wherein said means of recovering comprises:

a digitizer for converting said received signal into a digitized data stream;

means for computing a cross correlation between said digitized data stream and a programmed sequence, utilizing said cross correlation to extract multi-byte samples and byte timing information, and extracting symbol timing information from said extracted multi-byte samples; and

a demodulator for de-modulating said extracted multi-byte samples.

41. (previously presented) The device of claim 40, wherein said programmed sequence is a pseudo-noise sequence.

42. (previously presented) The device of claim 39, wherein said parallel spread spectrum communication signal is generated by a generation method comprising:

encoding data with n-bit orthogonal codes; and

multiplying a m-bit spreading sequence across one or more orthogonal codes encoding said data, wherein m is an integer multiple of n.

43. (currently amended) A system for communicating parallel spread spectrum data comprising:

means for encoding and spreading a data stream according to a first orthogonal encoding scheme <u>employing primary codes</u>;

a differential encoder;

means for generating a spreading sequence;

means for synchronizing said differential encoded data stream with said spreading sequence;

means for spreading said differential encoded data stream with said spreading sequence;

a phase-shift key modulator;

a transmitter;

a receiver; and

means for recovering said data stream from said received data stream.

44. (previously presented) The system of claim 43, further comprising a scrambler to spectrally whiten and remove and DC offset from said data stream.

45. (previously presented) The system of claim 43, wherein said means for encoding and spreading a data stream according to a first encoding scheme comprises an orthogonal Walsh encoder.

46. (original) The system of claim 45, further comprises:

means for providing synchronization pulses to ensure that said Walsh encoder and

said spreading sequence are aligned in time, and

a data storage buffer.

47. (original) The system of claim 43, wherein said spread sequence is a pseudo-noise sequence.

48. (original) The system of claim 43, further comprises:

means for generating a preamble comprising timing information for each data packet and inserting said preamble into each data packet.

49. (original) The system of claim 43, wherein said spreading sequence is selected from the group consisting of: M sequence, Barker code, Gold code, Kasami code, pseudo-noise sequence, or a combination thereof.

50. (original) The system of claim 43, further comprises:

means for converting said received data stream into a digitized data stream;

means for computing a cross correlation between said digitized data stream and a programmed sequence stored at said remote location;

means for utilizing said cross correlation to extract multi-byte samples and byte timing information;

means for extracting symbol timing information from said extracted multi-byte samples; and

means for de-modulating said extracted multi-byte samples.

51. (original) The system of claim 43, further comprising means for removing carrier offset from said received samples.

52. (previously presented) The system of claim 43, wherein said programmed sequence is a pseudo-nose sequence.